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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,618	09/29/2003	Katsuhisa Yamazaki	02910.000081	6254

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EXAMINER	
DOTE, JANIS L	

ART UNIT	PAPER NUMBER
1756	

DATE MAILED: 08/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/671,618	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Janis L. Dote	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 2* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 2* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on Jun. 24, 2005, has been entered.

2. The examiner acknowledges the amendment to claim 1 filed on Jul. 19, 2005. Claims 1 and 2 are pending.

3. The "Amendment to the claims" section filed on Jun. 24, 2005, did not comply with 37 CFR 1.121 for the reasons discussed in the "Notice of Non-compliant Amendment" mailed on Jul. 6, 2005. Accordingly, said "Amendment to the claims" section was not entered.

4. The examiner notes that the instant specification at page 16, line 23, to page 17, line 5, discloses that the concentration of surface atoms recited in instant claim 1 is "estimated based on the measured peak strength of each element [as measured by X-ray photoelectron spectroscopy] . . . [f]or

calculation of surface atom concentration, the atom concentration of all the metal atoms detected by the above measurement is converted to 100%, and thereafter, the concentration of each metal atom is calculated." In other words, the concentrations of surface atoms recited in instant claim 1 are based on the total number of metal atoms, which include Si, Fe, and Zn, present on the surface of the magnetic iron oxide.

The instant specification at page 16, lines 24-25, also discloses that the "ratio of the respective atoms is calculated from the concentration of atoms." In other words, the Zn/Si, Fe/Si, and Fe/Zn ratios recited in instant claim 1 are based on the number of the respective atoms present on the surface of the magnetic iron oxide.

In their responses filed on Dec. 13, 2004, and on Jun. 24, 2005, applicants did not present any comments regarding the examiner's interpretations.

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,007,957 (Kobori), as evidenced by

applicants' admissions at page 4, lines 15-17, page 8, line 10, to page 9, line 27, page 10, line 1, to page 11, line 1, combined with US 5,773,183 (Doujo).

Kobori discloses a magnetic toner comprising a styrene-n-butyl acrylate binder resin and the magnetic iron oxide A. See example 1 at cols. 25-26, and Table 2 at col. 27, example 1. The magnetic iron oxide A comprises 0.6% by weight of Si and 0.6% by weight of Zn based on the weight of the iron element. See Table 1 at col. 24, magnetic oxide A.

The amounts of Si and Zn based on the magnetic iron oxide, i.e., Fe_3O_4, are 0.43 % and 0.43%, respectively, which are within the amount ranges recited in instant claims 1 and 2. The amounts of Si and Zn were determined by the following formula:

Zn or Si content with respect to Fe_3O_4 = (Zn or Si content with respect to Fe element in Fe_3O_4, i.e., 0.6% by weight) x [(167.54, the amount of Fe in Fe_3O_4)/(231.54, the molecular weight of magnetic iron oxide Fe_3O_4)].

Said formula was determined as follows:

(1) Defining the Zn or Si amount 0.6 wt% based on the amount of the Fe element as the parameter "x", i.e., the weight amount of Zn or Si present in magnetic iron oxide particle)/ (weight amount of Fe element in magnetic iron oxide Fe_3O_4 particle);

(2) Rewriting the equation in item (1) such that "x" = 0.6 wt% x [weight amount of Fe element in magnetic iron oxide Fe_3O_4 particle]

(3) Defining the Zn or Si amount based on magnetic iron oxide as the parameter "x"/(weight amount of magnetic iron oxide Fe_3O_4 particle); and

(4) Replacing "x" in the equation in item (3) with the identity in item (2), such that

the Zn or Si amount based on magnetic iron oxide = 0.6 wt% x [(weight amount of Fe element in magnetic iron oxide Fe_3O_4 particle)/(weight amount of magnetic iron oxide Fe_3O_4 particle).

Kobori does not disclose the concentration of Si, Fe, and Zn atoms present or the atomic ratio of Zn/Si, Fe/Si, and Fe/Zn on the outermost surface of the magnetic iron oxide, as recited in instant claim 1.

The instant specification at page 4, lines 15-17, discloses that its magnetic toner provides images with stable image quality and image density after a "long-term of use," and that the toner has excellent environmental stability. The instant specification further discloses that when the concentrations of Si and Zn atoms are outside the ranges recited in instant claim 1, the image density is likely to decrease and/or fogging is likely to increase. Specification, page 8, lines 10-17, and

page 9, lines 2-12. The specification discloses that when the concentration of Fe is less than 70%, the concentration of Zn is less than 1.00%, and the ratio Fe/Si is lower than 3.00, in environments of high humidity and high temperature, the image density decreases on "boot-up." Specification, page 8, lines 17-21, page 9, lines 2-7, and page 10, lines 1-7. When the concentration of Fe is more than 85% and the ratio of Fe/Si is larger than 70.00, the dot reproducibility degrades and scattering of toner on the paper increases. Specification, page 8, line 17, to page 9, line 1, and page 10, lines 8-15. The specification discloses that when the Zn/Si and Fe/Si ratios are outside the ratio ranges recited in instant claim 1, the image density is likely to decrease and fogging is likely to increase. Specification, page 9, lines 16-27, and page 10, line 16, to page 11, line 1.

As discussed above, the Kobori magnetic iron oxide comprises Si and Zn in amounts that meet the amount ranges recited in instant claims 1 and 2. In addition, when making the magnetic iron oxide, Kobori discloses that "the pH was adjusted in the final state of the oxidization reaction to localize the silicate component and zinc component in the surface of the magnetic iron oxide particles." Col. 22, lines 61-64. Kobori also discloses that its magnetic toner can provide high density

images with excellent reproducibility. The magnetic toner exhibits stable chargeability and provides images with no fogging after long-term use. The toner also exhibits excellent chargeability and storage properties, even in environments of high humidity. Col. 5, lines 10-23, and Table 2, example 1. According to Kobori, the magnetic toner in example 1 of Kobori provided images with stable image density in environments of high temperature and high humidity after a long period of time. The magnetic toner in example 1 also provided images with little fogging and very good dot reproducibility in environments of high humidity and high temperature. See Table 2, example 1. Thus, it appears that the magnetic toner in example 1 of Kobori exhibits the properties sought by applicants.

Accordingly, it is reasonable to presume that the magnetic iron oxide present in the magnetic toner in example 1 of Kobori comprises Si, Zn, and Fe atoms in the surface concentrations and atomic ratios recited in instant claim 1. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Kobori does not exemplify a magnetic toner comprising a polyester binder resin as recited in instant claim 1. However, Kobori teaches that the binder resin can equally be a polyester resin. Col. 11, lines 28-29.

Doujo discloses a polyester binder resin having an acid value of 28 mg KOH/g, a hydroxyl value of 40 mg KOH/g, and a particular molecular weight distribution. Col. 16, line 17, to col. 17, line 4, and resin production example 1 at cols 17-18. According to Doujo, a toner comprising such a polyester binder resin exhibits superior low-temperature fixing and high-temperature anti-offset properties. The toner shows superior fixing performance even at halftone image areas. The toner has superior environmental stability. Col. 2, lines 50-64, and Table 3 at col. 3, example 1. Doujo further discloses that the polyester resin may be used as the binder resin in a magnetic toner. Col. 11, lines 7-41.

It would have been obvious for a person having ordinary skill in the art to use the polyester binder resin disclosed by Doujo as the binder resin in the magnetic toner in example 1 of Kobori, because that person would have had a reasonable expectation of successfully obtaining a magnetic toner having the properties disclosed by Doujo.

Applicants' arguments filed on Jun. 24, 2005, have been fully considered but they are not persuasive.

Applicants assert that Zn content in the magnetic iron oxide in example 1 of Kobori is 0.84 wt% based on magnetic iron

oxide Fe_3O_4, which is outside the range of 0.29 to 0.57% by mass with respect to magnetic iron oxide recited in instant claim 1.

However, as discussed in the rejection, supra, the Zn content in the magnetic iron oxide particles in example 1 of Kobori is 0.43 wt% based on magnetic iron oxide. That amount is within the Zn amount range of 0.29 to 0.57% by mass with respect to magnetic iron oxide, as recited in instant claim 1

Applicants' determination of the amount of Zn in the Kobori magnetic iron oxide by multiplying the amounts of 0.5 and 0.6% by weight with respect to the Fe element with the parameter (232/168), where 168 is the molecular weight of Fe in magnetic iron oxide Fe_3O_4 and the value 232 is the molecular weight of magnetic iron oxide Fe_3O_4 is not correct for the following reasons:

The absolute amounts of Zn in the magnetic oxide particles in examples 1 and 4 of Kobori are constant, i.e., they do not change. However, the weight percentage of Zn is dependent on the basis of the weight percentage, i.e., the amount of Fe element or the amount of magnetic iron oxide Fe_3O_4. As noted by applicants, the amount of Fe element in Fe_3O_4 , i.e., applicants' value of 168, is smaller than the molecular weight of Fe_3O_4, i.e., applicants' value of 232. Thus, because the molecular weight of Fe_3O_4 is greater than the weight of element Fe in Fe_3O_4,

the weight percentage of Zn with respect to Fe_3O_4 must be smaller than the weight percentage of Zn with respect to the Fe component in Fe_3O_4, not larger as shown in applicants' determination. Based on applicants' values of 168 and 232, the amounts of Zn in examples 1 and 4 of Kobori with respect to Fe_3O_4 are 0.43 and 0.36% by weight of magnetic iron oxide, respectively.

Applicants further assert that the concentration of Zn in atoms in the outermost surface of the magnetic iron oxide used in Kobori "would be significantly less than the 1.00% which is the lower limit claimed in the present invention." Applicants based their the assertion on "the experience of the present inventors" and the Kobori disclosure at col. 22, lines 60-64, Table 1 at col. 4, and Table 3 at col. 29, that the pH in the final stage of the oxidation reaction is 8, and applicants' determination that the Zn content in the Kobori magnetic particles ranges from 0.7 to 0.84% by weight of magnetic iron oxide.

However, for the reasons discussed above, Zn contents in the magnetic iron particles in examples 1 and 4 of Kobori are 0.43 and 0.36% by weight of magnetic iron oxide, respectively, which is within the Zn amount range of 0.29 and 0.57% by mass recited in instant claim 1. Furthermore, applicants' assertions

regarding the Zn content present on the surface of the magnetic oxide in example 1 of Kobori and the inventors' experience are mere attorney argument. Applicants have not provided any objective evidence supporting their assertions. Furthermore, for the reasons discussed in the above rejection, it is reasonable to presume that the magnetic iron oxide particles present in the magnetic toner in example 1 of Kobori comprise Si, Zn, and Fe atoms in the surface concentrations and atomic ratios recited in instant claim 1. Applicants have not carried their burden to prove otherwise. Accordingly, for the reasons discussed in the above rejection, the rejection of claims 1 and 2 over the combined teachings of the cited prior art stand.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (571) 273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on

access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JANIS L. DOTE
PRIMARY EXAMINER
GROUP ~~1500~~ 1700

JLD
Aug. 14, 2005